ZooKeys 192: 67–72 (2012)
doi: 10.3897/zookeys.192.3347
www.zookeys.org

FORUM PAPER

A peer-reviewed open-access journal
ZooKeys
Launched to accelerate biodiversity research

Biological nomenclature terms for facilitating communication in the naming of organisms

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Academic editor: *Lyubomir Penev* | Received 4 May 2011 | Accepted 7 May 2012 | Published 8 May 2012

Citation: David J, Garrity GM, Greuter W, Hawksworth DL, Jahn R, Kirk PM, McNeill J, Michel E, Knapp S, Patterson DJ, Tindall BJ, Todd JA, van Tol J, Turland NJ (2012) Biological nomenclature terms for facilitating communication in the naming of organisms. ZooKeys 192: 67–72. doi: 10.3897/zookeys.192.3347

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Abstract

A set of terms recommended for use in facilitating communication in biological nomenclature is presented as a table showing broadly equivalent terms used in the traditional *Codes* of nomenclature. These terms are intended to help those engaged in naming across organism groups, and are the result of the work of the International Committee on Bionomenclature, whose aim is to promote harmonisation and communication amongst those naming life on Earth.

Keywords

Nomenclature, Code, terminology

The International Committee on Bionomenclature (ICB, http://www.bionomenclature.net/) met in Berlin from 26–28 April 2012. As a part of this meeting it reviewed the status of communication between and change in the various international sets of rules that biologists follow when naming organisms – the *Codes* of nomenclature. The group exchanged updates on the status of the *Codes* (see Table 1 for abbreviations used for the various *Codes* of nomenclature) and discussed how to enhance inter-community communication with the aim of bringing together those concerned with naming life on Earth.

Recent progress on developing a Global Names Architecture (http://www.globalnames.org) has meant that the communities working on the various indices for a variety of organism groups are not only working in their own domains, but are increasingly developing technological solutions to enable more efficient retrieval of names of all organisms, along with information pertaining to their first publication. As groups focused on the nomenclature of various organisms work more closely together, efficient communication becomes ever more important. Recent changes in the rules governing the naming of prokaryotes (Labeda 2000; and for example Labeda and Oren 2011) and of algae, fungi and plants (see Hawksworth 2011; Knapp et al. 2011; McNeill and Turland 2011), in addition to those proposed for zoology (e.g., International Commission on Zoological Nomenclature 2008), are bringing the terminology used in and practices of the *Codes* closer together, and the Committee felt that agreement on a basic set of terms to be used when engaging in inter-community communication would greatly assist this on-going process. Naming of organisms is so critical that it is important that we work together on a greater consistency in nomenclatural practices to enable a swifter, more efficient documentation of biodiversity and help meet the global challenges of understanding Earth's genetic diversity and resources.

This table of terms is not comprehensive, but includes those terms that differ (or have differed in the past) significantly and have the potential to cause confusion. It is based on the table of equivalence of technical terms arising from discussions on harmonisation of nomenclature (Hawksworth 1995) and that accompanying the first *Draft BioCode* (Greuter et al. 1996). These early attempts have here been updated to reflect current usage of terms in the various *Codes*. As with the early tables, the

Table 1. Recommended terms for use in biological nomenclature with a comparison of equivalents across six current *Codes* of nomenclature

Bionomenclature	**ICN**[1]	**ICNCP**[2]	**ICNP**[3]	**ICVCN**[4]	**ICZN**[5]	**PhyloCode**[6]
Publication and precedence of names						
published	effectively published	published	effectively published	[none]	published	published
precedence/priority	priority	priority	priority	[none]	precedence/priority	precedence
earlier	earlier	earlier	earlier	[none]	senior	earlier
later	later	later	later	[none]	junior	later
Nomenclatural status						
established	validly published	established	validly published	established	available	established
compliant	legitimate	acceptable	legitimate	valid	potentially valid	acceptable
non-compliant	illegitimate	[none]	illegitimate	[none]	permanently invalid	[none]
registered	[deposited]	registered	validly published	[none]	registered	registered
Taxonomic status						
accepted	correct	accepted	correct	accepted	valid	accepted
Synonymy and homonymy						
homotypic	homotypic	[none]	homotypic	[none]	objective	homodefinitional
heterotypic	heterotypic	[none]	heterotypic	[none]	subjective	heterodefinitional
replacement name	replacement name	replacement name	replacement name	[none]	new replacement	replacement name
Conservation and suppression						
conserved	conserved	conserved	conserved	[none]	conserved	conserved
protected	listed	[none]	listed[7]	accepted	protected	[none]
sanctioned (fungi only)	sanctioned (fungi only)	[none]	[none]	[none]	[none]	[none]
suppressed/rejected	rejected	rejected	rejected	[none]	suppressed	suppressed
Types of names						
name-bearing type	nomenclatural type	nomenclatural standard	nomenclatural type	[none]	name-bearing type	[none]
nominal taxon	name and type	[none]	name and type	[none]	nominal taxon	[none]

[1] *International Code of Nomenclature for algae, fungi, and plants* (ICN) or *Melbourne Code* (McNeill et al. 2012). It is expected to be available online in 2013 at http://www.iapt-taxon.org [2] *International Code of Nomenclature for Cultivated Plants* (ICNCP) or *Cultivated Plant Code*, 8th edition (Brickell et al. 2009); http://www.actahort.org/chronica/pdf/sh_10.pdf [3] *International Code of Nomenclature of Prokaryotes* (the name adopted for the *International Code of Nomenclature of Bacteria* (ICNB) or *Bacteriological Code* (Lapage et al. 1992), see Labeda 2000): http://www.ncbi.nlm.nih.gov/books/NBK8817/) [4] *The International Code of Virus Classification and Nomenclature* (ICVCN), in Virus Taxonomy (ed. King et al. 2011) [5] *International Code of Zoological Nomenclature* (ICZN), 4th edition (International Commission on Zoological Nomenclature 1999): http://www.nhm.ac.uk/hosted-sites/iczn/code/ [6] *International Code of Phylogenetic Nomenclature* or *PhyloCode*, version 4c (Cantino and Queiroz 2010): http://www.ohio.edu/phylocode/ [7] Listed in the sense of appearing on *The Approved Lists of Bacterial Names*

terms in each row are not perfectly congruent. We recommend the use of these terms to facilitate communication between those working with the nomenclature of different groups of organisms without necessarily displacing those used by tradition within the various communities. These terms can be employed where considered of value in presentations, publications, and teaching, as well as in discussions between the communities who use the different *Codes*. We invite and welcome comment on the commended terms, and suggestions for other terms that have caused confusion that might be added – our aim is not to impose practice, but to facilitate communication among all involved in the naming of organisms of all kinds.

Acknowledgements

We thank the International Union of Biological Sciences (IUBS) for financial support for our through the 2009-2012 IUBS "BioCode Programme".

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Current membership of the International Committee on Bionomenclature

(ICB – contact details for all members are available at http://www.bionomenclature.net/)

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